CLAIMS:

1. A domestic water heater, comprising:

at least three electrodes for immersion in the water; and

a controller adapted to selectively energise the electrodes in at least two different combinations.

2. The apparatus of claim 1, further comprising a power supply, and wherein the controller is adapted to energise one or more of the plurality of electrodes by activating switches separately connecting at least two of the electrodes to the power supply.

3. The apparatus of claim 2, further comprising a current detector arranged to detect the total electrode current, and wherein the controller is further adapted to activate said switches in dependence upon the detected current.

4. The apparatus of claim 2 or 3, wherein the plurality of electrodes comprise a first and second group of electrodes, the first group of electrodes being connected to a first terminal of said power supply, and each of the second group of electrodes being connected to a second terminal of the power supply via a switch.

5. The apparatus of claim 4, wherein each of the first group of electrodes is connected to the first terminal of said power supply via a switch.

6. The apparatus of claim 4 or 5, wherein the first terminal of the power supply is a neutral terminal and the second terminal is a live terminal.

7. The apparatus of claim 4, 5 or 6, further comprising an electrically insulated vessel for containing the fluid to be heated, wherein the plurality of electrodes are spatially arranged with predetermined gaps between the plurality of electrodes, and wherein the predetermined gaps between different ones of the electrodes are different sizes.

8. The apparatus of any preceding claim, wherein each different combination of electrodes results in a different total fluid resistance being observed across the electrodes.

9. The apparatus of claim 8, wherein the controller is further adapted to increase the resistance presented between active electrodes by switching in suitable electrode pair combinations in response to a increase in the measured current and to decrease the resistance presented between active electrodes in response to a decrease in the measured current.

10. The apparatus of any preceding claim, wherein the electrodes are formed from vertically extending plates.

11. The apparatus of any preceding claim, wherein the electrodes are substantially parallel.

12. The apparatus of any preceding claim, wherein the electrodes are formed from carbon or carbon containing media.

13. The apparatus of claim 12, wherein the electrodes are formed from compressed exfoliated carbon.

14. The apparatus of claim 12, wherein the electrodes are formed from a polymer and carbon mixture.

15. The apparatus of any preceding claim, wherein the plurality of electrodes are arranged as a plurality of concentric rings, arranged about a central rod.

16. The apparatus of claim 15, wherein alternate rings are from the same group of electrodes.

17. The apparatus of claim 15 or 16, wherein alternate rings are of differing heights.

18. Apparatus for heating an electrically conductive fluid, comprising at least two electrodes for immersion in the fluid.

19. The apparatus of any preceding claim, further comprising a tilt switch arranged to isolate the power supply means from the plurality of electrodes when the tilt switch detects the apparatus is tilted.

20. The apparatus of any preceding claim, further comprising:

a lid; and

a switch, mechanically operable by the opening of said lid, for isolating the power supply means from said electrodes when the lid is opened.

21. The apparatus of claim 20, further comprising a handle, said handle comprising connecting means, for connecting said switch to said power supply.

22. The apparatus of any preceding claim, wherein the controller comprises a microcontroller adapted to received an input indicative of the electrode current from the current detector and to provide a controlling output to one or more of the switches, dependent on the electrode current drawn.

23. The apparatus of any preceding claim, further comprising a conductor located around the top of said vessel, below said lid, wherein the conductor is electrically connected to an earth line of a power supply.

24. The apparatus of any preceding claim, the vessel further comprising a spout and a spout covering mesh, wherein the spout covering mesh is connected to the earth of the power supply and is capable of allowing the heated water to pass through when the heating apparatus is tilted substantially off vertical.

25. The apparatus of any preceding claim, wherein the switches are semiconductor switches and the controller operates said semiconductor switches using a driver circuit.

26. The apparatus of claim 25, wherein the semiconductor switches are triacs.

27. The apparatus of claim 25, wherein the semiconductor switches are thermally coupled to the vessel base.

28. A domestic kettle comprising the apparatus of any of claims 1 to 27.

29. The apparatus of any preceding claim, wherein the water being heated is potable water.

30. An electrode arrangement for use in heating a electrically conductive fluid, said electrode arrangement comprising a first plurality of electrodes, and a second plurality of electrodes, each activated by a switch, whereby activating different ones of the switches results in varying resistances being observed across both pluralities of electrodes.

31. The apparatus of any claim 30, wherein different ones of the electrodes are separated by different predetermined distances.

32. A method of heating domestic potable water, the method comprising:

immersing at least three electrodes in the fluid to be heated; and

selectively energising the electrodes in at least two different combinations.

33. The method of claim 32, further comprising the steps of:

measuring a total electrode current; and

activating said switches in dependence upon said measured current.

34. The method of claim 33, further comprising the steps of increasing the resistance presented between active electrodes by switching in suitable electrode pair combinations in response to a increase in the measured current and to decrease the resistance presented betwe en active electrodes to a decrease in the measured current.

35. The method of claim 34, wherein the step of increasing the resistance presented between active electrodes is achieved by binary addition of the energisation of the different electrodes.

36. The method of claim 35, further including the step of returning to a previous combination of energised electrodes if the measured total electrode current exceeds a predetermined level.

37. The method of any of claims 31 to 36, further including the step of disconnecting the electrodes from the power supply if the current measured deceases rapidly as a result of the fluid starting boiling.

38. A domestic electric kettle for heating water, comprising:

a vessel for containing the water;

at least three electrodes for immersion in the water contained in the vessel; and

a controller adapted to selectively energise the electrodes in at least two different combinations to thereby adjust a total fluid resistance observed across the electrodes.

39. A heating device for water or other liquids, incorporating two electrodes, which are energised by connection to a single-phase (or two phases of a three phase) electrical power supply, the electrodes when energised cause current to be passed through the water causing it to be heated (due to its own electrical resistivity), the passage of this electrical current causes the water to be heated but without the formation

of bubbles which lead to noise generation, thus a rapid and silent kettle.

40. A method of operating an ohmically heated silent kettle as claimed in Claim 39 wherein the current between electrodes 2 and 3 can be varied by the adjustment of the separation of said electrodes to tune the kettle for optimum performance.

41. A method of operating an ohmically heated silent kettle as claimed in Claim 39 wherein the current between electrodes 2 and 3 can be varied by the adjustment of the area of said electrodes to tune the kettle for optimum performance.

42. A method of operating an ohmically heated silent kettle as claimed in Claim 39 wherein the current between electrodes 2 and 3 can be varied by electronic monitoring and control techniques to tune the kettle for optimum performance.

43. An ohmically heated silent kettle as claimed in Claim 39 wherein said vessel is electrically insulating.

44. A silent heating technique which could be employed for heating water (and other liquids) in equipment such as in-line water heaters, coffee machines and showers.

45. A silent heating technique for heating water causes the heating of the water without the formation of precipitates ('furring').